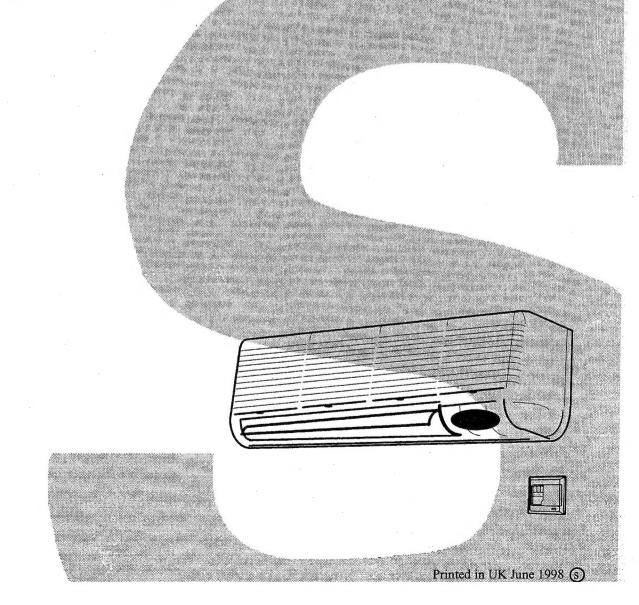
# **TOSHIBA**

SERVICE MANUAL

# AIR-CONDITIONER

SPLIT WALL TYPE, COOLING ONLY

RAV-183K-PE/RAV-182A-PE RAV-243K-PE/RAV-242A-PE RAV-243K-PE/RAV-242A8-PE



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#### SUMMARY

- The units referred to within this manual conform with the protection requirements of Directives 89/336/EEC Electromagnetic Compatibility and 73/23/EEC Low Voltage.
- Operating conditions of units are as follows:

OUTDOOR TEMPERATURE	-2 TO 43°C
ROOM TEMPERATURE	18 TO 32°C
ROOM HUMIDITY	LESS THAN 80%

Note 1: Cooling Capacity is based on the following temperature conditions:

Indoor air inlet temperature 27°C DB, 19°C WB.

Outdoor air inlet temperature 35°C DB.

Note 2: For details on Control Circuits and Remote Controller, refer to Service Manual A90-9504

Note 3: Metric / Imperial pipe conversion.

Diameter (mm)	6.4	9.5	12.7	15.9	19	22
Nominal Diameter (inch)	1/4	3/8	1/2	5/8	3/4	7/8

# 1. SPECIFICATIONS

ITEM		MODEL	RAV-183K-PE
Cooling capacity	and the second of the second o	kW	estimates a statute of programmatic configuration of the configuration o
or a service of the s	Production of the state of the	Phase	A CONTRACTOR OF THE CONTRACTOR
Power source	Alle Alexander (Marie Arrivale) - 1 Sec.		and a stranger of the second o
ાં, દિવસાદુકો મહત્વે		Hz	50 sayana sayan say
100	5.83	market to the state of the stat	COOLING
Power consumption	the second secon	kW.	and a result of the control of the statemental structure and <b>2.2</b> and a complete major, involving an expensive the
Power factor		% Yes,	90
Running current		Α	and the same of th
Starting current	27774	Α .	60
	Indoor unit (High, Med, Low)	dB(A)	43/39/36
Operating noise (SPL)	Outdoor unit	dB(A)	50
	Name of refrigerant		Approximation to the second se
Refrigerant	Charge volume	· km	1.45
modification the profession and a second of		kg	35
	Add. volume (20-30m)	. g/m	
Refrigerant control	the state of the s		Capillary tube
10 - 10 - 10 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 -	Larger side size	mm	e12.7
· ·	Coupler style		Flare
	Smaller side size	.mm	
	Coupler style		Flare Annual Property of the P
Interconnection wine	Standard length	m	7.5
Interconnection pipe	Maximum actual pipe len (of one way)	gth m	3 <b>0</b>
	Maximum height differen	ce	and the second s
	If indoor unit higher	m	15 (15 m)
a property of the Artist Control	If outdoor unit higher	m	30
Condensate drain pipe	37. 5. 7. 7. 7. 7.	mm	<b>Ø 20 (ID)</b>
INDOOR UNIT Model	1188 6 6		RAV-183K-PE
Appearance colour			Silky Mist
	Height	mm	372
Dimensions	Width	mm	1,149
Dimonsions	Depth	mm	226
Net weight		kg	20
Heat exchanger type		ng .	Finned tube
Indoor fan type	+ 41 m/m.		Transverse Flow Fan
Air volume		m³/h	780
Fan motor output		w	27
Air filter		vv	Washable
			RAV-182A-PE
OUTDOOR UNIT Mode			Bronze white (Munsell 6Y7.5/1)
Appearance colour			740
	Height	mm	
Dimensions	Width	mm	880
	Depth	mm	310
Net weight		kg	58
Heat exchanger type			Finned tube
Outdoor fan type			Propeller fan
Air flow volume		m³/h	2,700
Fan motor output		W	39
0	Model		PH250X3-4LS
Compressor	Output	kW	1.5
			Fuse, Crankcase heater, Overload relay

Specifications are subject to change without notice.

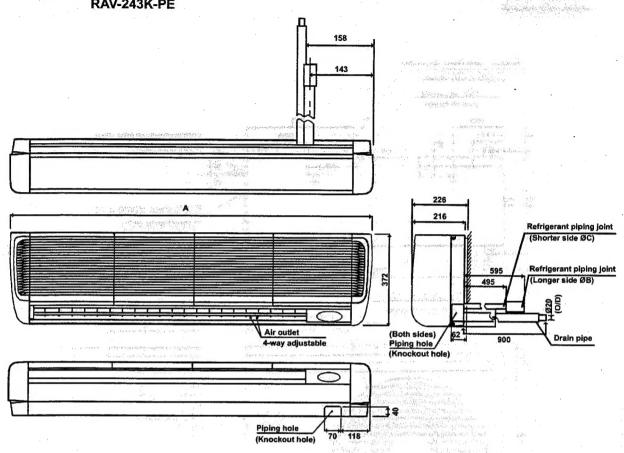
MODEL RAV-243K-PE RAV-243K-PE ITEM Cooling capacity kW 6.7

Downs pourse	and the state of	Phase	220-240	380-415				
Power source	en producer and entered the production of the second	Hz:	2ZU-Z4U	50				
The second secon		112	COOLING	COOLING				
Power consumption	None and the control of the control	kW	2.9	2.8				
Power factor	and the second s		93 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 -	86				
Running current	Lago Congressor - Secretary -	A	13.5	4.7				
Starting current	an anglas in na mga atangan ng mga Challa sa minin	A		25				
	e emparado esta pere en el como e			/40/37				
Operating noise (SPL)	Indoor unit Outdoor unit	dB (A)	44	53				
A CONTRACTOR OF THE CONTRACTOR	Name of refrigerant	dB (A)	The second state of the second	R-22				
				1.65				
Refrigerant	Charge volume	kg	and the second s	Control of the Contro				
	Add. volume (20-30	m) g/m	en de la companya de La companya de la co	45				
Refrigerant control				pillary tube				
and the state of the separate separate server for the control of	Larger side size	mm		15.9				
	Coupler style			Flare				
A page per a construction of a significant resolution of a final significa	Smaller side size	mm		Ø 6.4				
Interconnection	Coupler style	1.1		Flare				
pipe	Standard length	* * * * <b>m</b> * * * * * * * * * *	The state of the s	7.5				
and a service probability of the contract of t	Maximum actual pip (of one way)	e length m	ing the many of the manufacture of the many that is a many that is a many that is a many of the many that is a	30				
	Maximum height diff	ference		Section 1				
1.4 1 Vil. 10	If indoor unit higher	m		15				
	If outdoor unit highe			30				
Condensate drain pipe		mm	a	20 (ID)				
INDOOR UNIT Model				243K-PE				
Appearance colour	and the state of t			Silky Mist				
- compared water a week to com-	Height	mm		372				
Dimensions	Width	mm		1,478				
Danalisions	Depth	mm						
'Not welcht, with the	Берш							
Net weight		kg		26				
Heat exchanger type	The state of the s			ned tube rse Flow Fan				
Indoor fan type	131 - 111 -	m³/h		1200				
Air volume	The state of the s	W		27				
Fan motor output	, ,	,		ashable				
Air filter	Ial							
OUTDOOR UNIT Mod	)ei		RAV-242A-PE	RAV-242A8-PE				
Appearance colour				(Munsell 6Y7.5/1)				
	Height	mm	······	790				
Dimensions	Width	mm	The state of the s	880				
	Depth	mm		310				
Net weight		kg		64				
Heat exchanger type				ned tube				
Outdoor fan type				eller fan				
Air flow volume		m³/h	3,000					
Fan motor output		W		63				
Compressor	Model		PH330X3-4MS	YH330X3-MS				
- Jimprosour	Output	kW	2.2	2.2				
		*******	Fuse, Crankcase heater, Inner overload relay	Fuse, Overcurrent relay, Return-Lock				

Specifications are subject to change without notice.

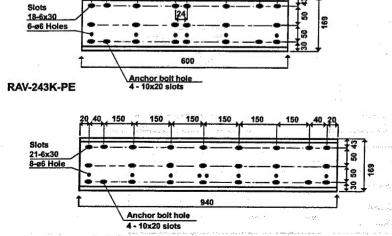
#### 2. CONSTRUCTION VIEWS

#### 2.1 Indoor Unit RAV-183K-PE RAV-243K-PE



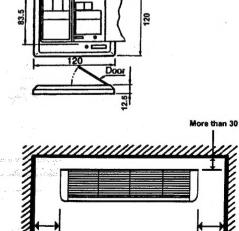
	MODEL	Α	В	С
	RAV-183K-PE	1149	12.7	6.4
Γ	RAV-243K-PE	1478	15.9	6.4





Installation board mounting bolt hole location

#### Remote controller



Slots (2 - 4.5 x 9)

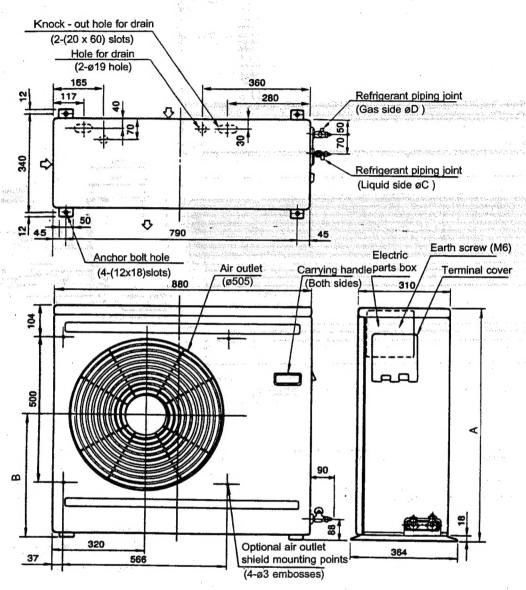
ing part of the properties and the first

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Space required for service

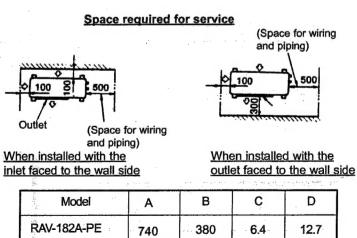
More than 300

#### 2.2 Outdoor unit RAV-182A-PE RAV-242A-PE RAV-242A8-PE



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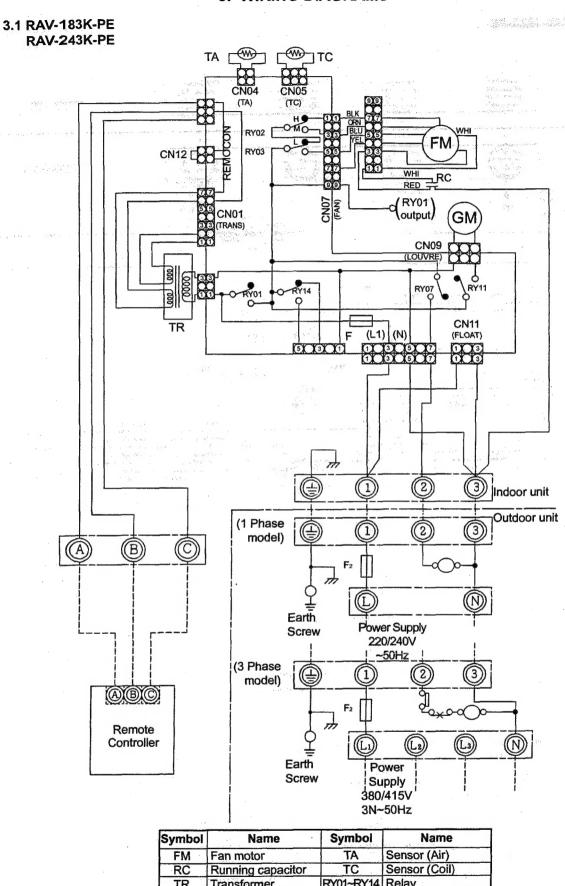


RAV-182A-PE 740 380 6.4 12.7

RAV-242A-PE 790 430 6.4 15.9

(Unit: mm)

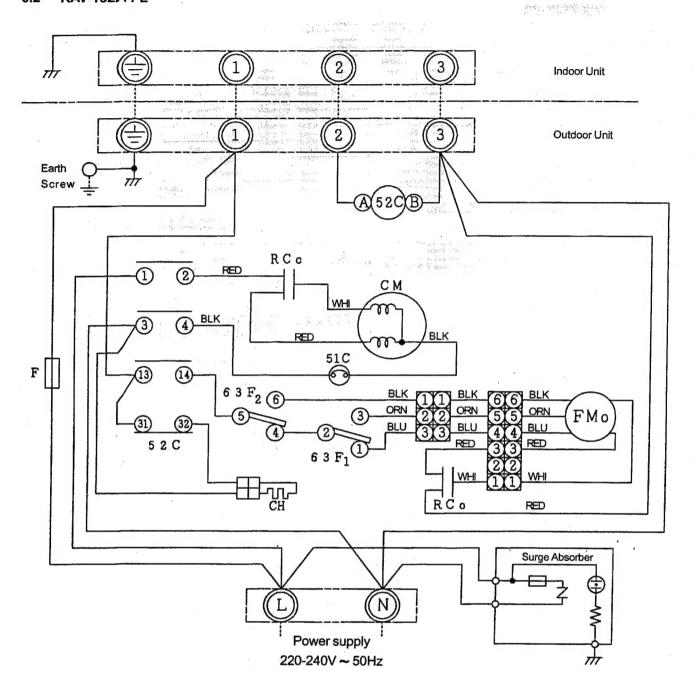
#### 3. WIRING DIAGRAMS



Symbol	Name	Symbol	Name
FM	Fan motor	TA	Sensor (Air)
RC	Running capacitor	TC	Sensor (Coil)
TR	Transformer	RY01~RY14	Relay
	Fuse (PCB)	F2	Fuse (T5A)
GM	Geared Motor		2 22 2 3 3 2 3 3 3 3

Shows terminal block and figures show terminal numbers. Broken lines show wiring at site. Do not operate the units with magnetic contactor pushed in.

#### 3.2 RAV-182A-PE



Adding the property of the state of the state of

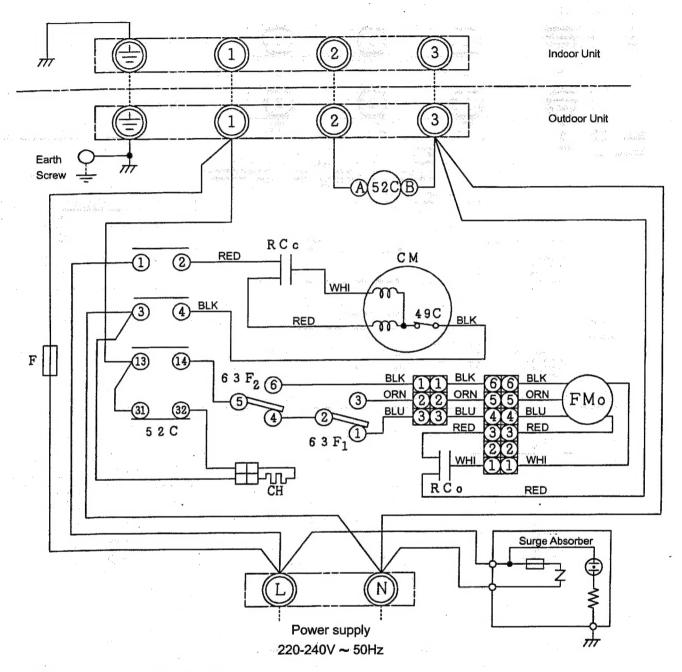
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shows terminal block and figures show terminal numbers. Broken lines show wiring at site.

Do not operate the units with the magnetic contactor pushed in.

Symbol	Name	Symbol	Name
RCc	Running Capacitor (Comp.)	СМ	Compressor
51C	Overload Relay	52C	Magnetic Contactor
63F <sub>1,2</sub>	Pressure Switch (2-stage)	FMo	Fan Motor
RCo	Running Capacitor (Fan Motor)	СН	Crank Case Heater
F	Fuse (T5A)		N 1 2 2 2

#### 3.3 RAV-242A-PE



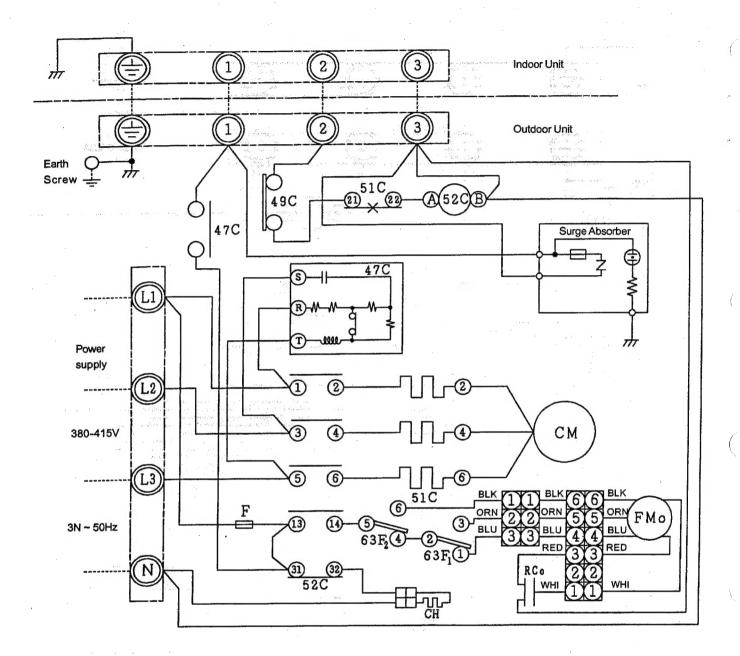
WARRING AND AND

shows terminal block and figures show terminal numbers. Broken lines show wiring at site.

Do not operate the units with the magnetic contactor pushed in.

Symbol	Name	Symbol	Name
RCc	Running Capacitor (Comp.)	CM	Compressor
49C	Inner Overload Relay	52C	Magnetic Contactor
63F <sub>1,2</sub>	Pressure Switch (2-stage)	FMo	Fan Motor
RCo	Running Capacitor (Fan Motor)	CH	Crank Case Heater
F	Fuse (T5A)	- r <sub>c</sub>	Service and any otherwise the service of the servic

#### 3.4 RAV-242A8-PE



- 1. O shows terminal block and figures show terminal numbers. Broken lines show wiring at site.
- 2. When the phases are not connected correctly, the reverse phase protector operates and the unit will not start.

In this case, check the three phase wiring.

Do not operate the units with the magnetic contactor pushed in.

Symbol	Name	Symbol	Name
47C	Return Lock	CM	Compressor
51C	Overcurrent Relay	52C	Magnetic Contactor
63F <sub>1,2</sub>	Pressure Switch (2-stage)	FMo	Fan Motor
RCo	Running Capacitor (Fan Motor)	49C	Thermostat
F	Fuse (T5A)	CH	Crank Case Heater

## 4. SPECIFICATION OF ELECTRICAL PARTS

# 4.1 RAV-183K-PE

.2 R/	AV-243K-PE	The Control of the Co	Market Balletin Balletin				and the second of the second o		
				112		A.E. M.			
	exchanger temperature	DTN-C103J40	Maximum input 34mA		kΩ	-12 62.29	0 32.82	25 10.0	3.59
-	Indoor unit sensor for heat-		Maximum input	kΩ	16.1 °C	12.6	10.0	8.0	5.2
	Sensor for room temperature		ran Samuel and American and Ame	°C	15	20	25	30	40
	Geared motor for louvre	MT8-3-6	AC 230V, 3W				galattia. Naarok		
	And the first section of the f		Capather alternations		ভেন্নতী সংক্রম	mphis Army	* ************************************	ala <u> </u>	3 4
		CARETRINETRIKE (PARTICIPAL	The second of the second			- 14, 1995)	Personal States	idea 9	1 h
	and the second of the second o	an marine a minimorrow rationorist		<u>:</u>					
F. I IX	AV-105K-FE				V3696	sinks, igni	AND THE STATE OF		X.:
4 D	AV-183K-PE	and the programmer of the contraction of the programmer of the contraction of the contrac	and the contract of the Appendix of the contract of	um tital access	د که خانه سخمین		ga magalan a Maran maka 1865	name of growing the party of th	), (984 (2002)

#### 4.2 RAV-243K-PE 200 year godinan . He was allowed the first the territories

No	PARTS NAME						
1	Indoor unit fan motor	, granda daga sanara a a a a a a a a			gar gar	, J.	 y V
2	Running capacitor for Indoor fan motor						
3	Transformer (Indoor unit)	thought is the control of the contro				S	
4	Geared motor for louvre	MT8-3-6	AC 230V, 3W				
5	Sensor for room temperature	The state of the s	Maximum input 38mA	80.750	Augustic State		
6	Indoor unit sensor for heat- exchanger temperature	DTN-C103J40	Maximum input 34mA				

# 4.3 RAV-182A-PE

No.	Parts Name Type		Specifications							
		-	Output (Rated)1.5kW, 2 pole,220/240V, 1 phase, 50Hz							
1	Compressor	PH250X3-4LS			Red-Black	Black-White				
	e de la companya de	and the contract of the contra	Winding resistance (Ω) (at 20°C)	3.43	1.13	2.30				
2	Outdoor unit fan motor SMF-230-39N-3		Output (Rated) 39W, 6 pole, 230V, 1 phase, 50Hz Winding resistance 97.1Ω at 20°C (Red-Black)							
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC400V, 4μF	ingeneral ship sasi	realist Describera	A STATE OF THE STA				
4	Magnetic contactor	FMCa-1S	AC230V, 50Hz	gangshoodir edition	sa, agair taikistoris	A Service of the serv				
5	Pressure switch (2-stage)	STB-X602	Tripping pressure 19kg/cm <sup>2</sup> G, 2 Resetting pressure 13kg/cm <sup>2</sup> G,		en more i serien e. And direktor i despress. Laste di estato antidesse	A TAN A SAN				
6	Crankcase heater	A territory was the second of	AC240V, 28W	a programación de la cada.	and the grade of the second second	and a second of the second				
7	Fuse		T5A							
8	Running capacitor for compressor	MT-44MP456W	AC 440V, 45μF		artifel and of wallings of	Jacobs Ch. L. Jacobs				
9	Overload relay	OL-177GM15	AC240V, Tripping temp: 165°C, F	Resetting te	emp: 80°C					

#### 4.4 RAV-242A-PE

No.	Parts Name	Type	Specifications Specific Address of the Specific Addres						
	0		Output (Rated) 2.2kW, 2 pole,220	/240V, 1 pt	ase, 50Hz	<b>:</b>			
1	Compressor	PH330X3-4MS			Black-White				
		And the second of the second	Winding resistance (Ω) (at 20°C)	2.62	0.77	1.87			
2	Outdoor unit fan motor SMF-230-63N-3		Output (Rated) 39W, 6 pole, 230V, 1 phase, 50Hz Winding resistance 92.0Ω at 20°C (Red-Black)						
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC400V, 4μF						
4	Magnetic contactor	FMCa-1S	AC230V, 50Hz						
5	Pressure switch (2-stage)	Pressure switch STB-X603		3kg/cm²G 17kg/cm²G					
6	Crankcase heater		AC240V, 28W						
7	Fuse		T5A						
8	Running capacitor for compressor	EAR42M606UF	AC 420V, 60μF						

#### 4.5 RAV-242A8-PE

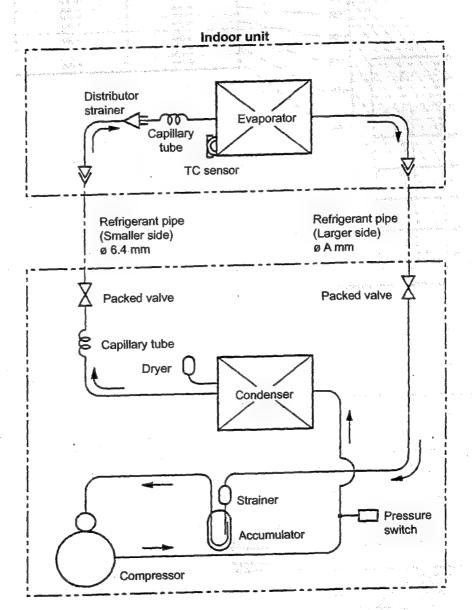
No.	Parts Name	Type	Specifications
1	Compressor	YH330X3-MS	Output (Rated) 2.2kW, 2 pole, 380/415V, 3 phase, 50 Hz
			Winding resistance 4.15 $\Omega$ at 20°C (Red-Black)
2	Outdoor unit fan motor	SMF-230-63N-3	Output (Rated) 63W, 6 pole, 230V, 1 phase, 50 Hz
			Winding resistance 92.0 Ω at 20°C (Red-Black)
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC 400V, 4 μF
4	Magnetic contactor	FMSa-1	AC 230V, 50Hz, Tripping current 7.5A, Manual reset
5	Pressure switch (2-stage)	STB-X603	Tripping pressure 21 kg/cm <sup>2</sup> G, 23 kg/cm <sup>2</sup> G Resetting pressure 15 kg/cm <sup>2</sup> G, 17 kg/cm <sup>2</sup> G
6	Crankcase heater		AC 240V, 28W
7	Fuse		T5A
8	Bimetal thermostat	CS-7	Tripping temperature 120 °C Resetting temperature 90 °C
9	Return lock	STR-4AD	AC400/440V

# 5. REFRIGERANT PIPING DIAGRAM

Marie Carlo Carlo Carlo

AND CONTROL OF THE STREET, AND THE STREET, AND

5.1 Indoor unit RAV-183K-PE RAV-243K-PE Outdoor unit RAV-182A-PE RAV-242A-PE / RAV-242A8-PE



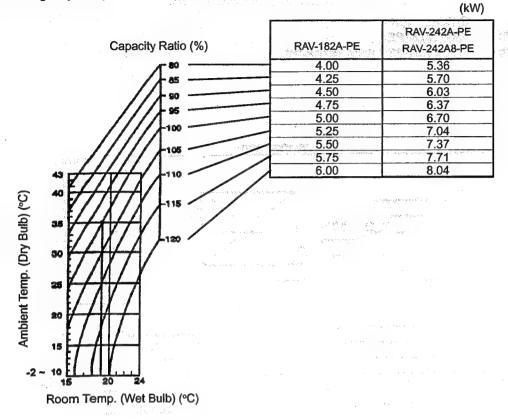
**Outdoor unit** 

Indo	or Unit	Outdoor Unit		
Model RAV-183K-PE	Capillary IDø1.5 x 300L x 4P	Model RAV-182A-PE	Capillary IDø2.4 x 600L x 1P	12.7
RAV-243K-PE	IDø1.7 x 400L x 4P	RAV-242A-PE & RAV-242A8-PE	IDø2.4 x 300L x 1P	15.9

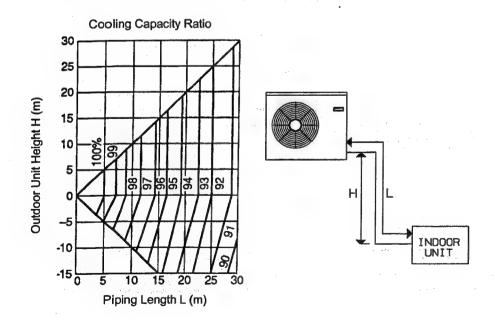
#### 6. PERFORMANCE CHARACTERISTICS

The contract of the second of

#### 6.1 Cooling capacity



#### 6.2 Cooling Capacity Ratio



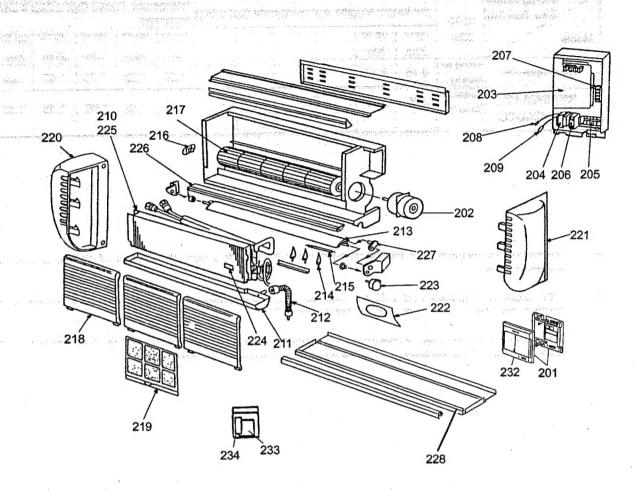
#### 6.3 Piping length/additional refrigerant volume

Piping length less than (m)		For lor	ger len	gths add	d refrige	rant (kç	g) ± 50g	Refrige reclain	erant ch	arge (kg	) ± 50g	j if unit i	s
Model	20m	up to	up to					up to	up to	up to	up to	up to	up to
Congression Constitution		25m	30m					5m	10m	15m	20m	25m	30m
RAV-182A-PE	Filled at factory	0.15	0.35		tag officer of the connector	gringer gringer	eri gjjerer	1.20	1.30	1.35	1.45	1.60	1.80
KAV-Z4ZA-PE	Filled at factory	0.20	0.45				in and a	1.50	1.55	1.60	1.65	1.85	2.10

- The amount of refrigerant put into the outdoor unit at the factory is equivalent to that which fills up 20m length of refrigerant pipe.
- If the length of refrigerant pipe is 20m or less, addition of refrigerant at the installation site is unnecessary. If the length of the pipe exceeds 20m, add the refrigerant R-22.
- Overcharge or undercharge of refrigerant in the outdoor unit will cause malfunction of the compressor. The prescribed amount of the replenishment of the refrigerant is shown in the table above.

### 7. EXPLODED VIEWS AND PARTS LISTS

#### 7.1 Indoor unit RAV-183K-PE RAV-243K-PE



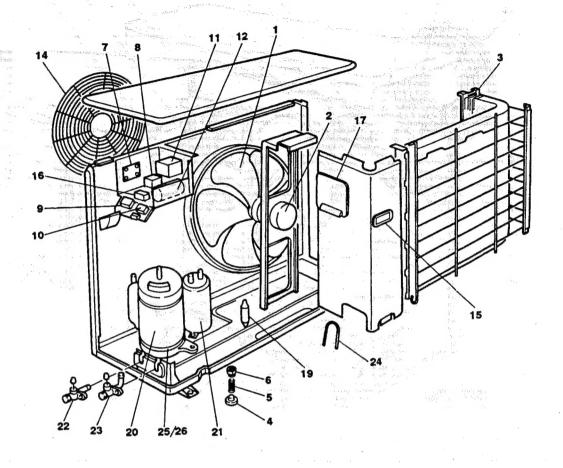
Location No	Part No	Desciption
201	43A69004	Remote Controller
202	43A21016	Motor (RAV-183K-PE)
202	43A21017	Motor (RAV-243K-PE)
203	43A69005	PC Board
204	43A58002	Transformer
205	43A60001	Terminal 4P
206	43155101	Capacitor
207	43A60002	Terminal 3P
208	43150118	Sensor, TA
209	43150116	Sensor, TC
210	43A44022	Evaporator (RAV-183K-PE)
210	43A44025	Evaporator (RAV-243K-PE)
211	43172112	
211	43172114	Drain Pan (RAV-243K-PE)
212	43170182	Drain Hose
213	43A09005	H-Grille (RAV-183K-PE)
213	43A09006	H-Grille (RAV-243K-PE)
214	43A09003	V-Grille
215	43A39004	Connection Rod
216	43022189	Bearing

Location No	Part No	. Description
217 217 218 219 220 221 222 223 224 225 226 226 227 228 228 232 233 234	43120135 43120136 43A09004 43A80008	Cross Flow Fan (RAV-183K-PE) Cross Flow Fan (RAV-243K-PE) Inlet Grille Air Filter
	-	

South William States and the control of the control

## 7.2 Outdoor unit

#### RAV-182A-PE

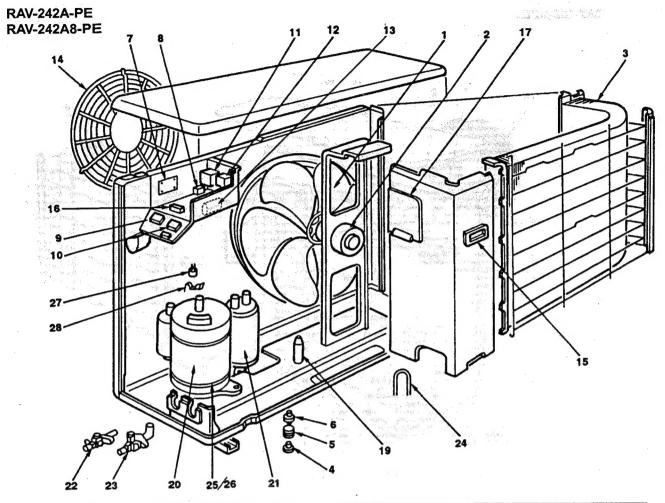


Location No.	Part No.	Description
1	43120156	Fan, Propeller
2	43A21012	Motor, Fan AC230V, 50Hz
3	43143642	Condenser
4	43049132	Base, Spring, B
5	43149198	Spring, Buffer
6	43149212	Base, Spring, A
7	43169584	Surge Absorber
8	43A49002	Pressure Switch, 2-stage
9	43A60003	Terminal, 2P
10	43A60001	Terminal, 4P
11	43152334	Magnetic Contactor
12	43155115	Capacitor, Plastic Film 45MFD, 440V

Location No.	Part No.	Description
14	43A19001	Guard, Fan
15	43119368	Hanger
16	43155080	Capacitor, Plastic Film
17	43162027	Cover, Electric Parts
19	43145098	Dryer
20	43041845	Compressor PH250X3-4LS
21	43148105	Accumulator
22	43146454	Packed Valve, Ø 6.4mm
23	43146406	Packed Valve, Ø 12.7mm
24	43146430	Capillary Tube
25	43157167	Heater, Crankcase
26	43193043	Spring
	9.4	LENGTH CONTRACTOR OF THE STATE

Bernald Bernaldis

#### 7.3 Outdoor unit



Location No.	Part No.	Description
1	43120156	Fan, Propeller
2	43A21011	Motor, Fan AC230V,50Hz
3	43143644	Condenser
4	43049132	Base, Spring, B
5	43149198	Spring, Buffer
6	43149212	Base, Spring, A
7	43169584	Surge Absorber
8	43A49003	Pressure Switch, 2-stage
9	43A60004	Terminal, 2P (RAV-242A-PE)
9	43A60005	Terminal, 4P (RAV-242A8-PE)
10	43A60001	Terminal Block, 4P
11	43152334	Magnetic Contactor
		(RAV-242A-PE)
11	43152345	Magnetic Contactor
		(RAV-242A8-PE)
12	43154148	Return Lock, STR-4AD
		(RAV-242A8-PE)
13	43055379	Capacitor, Electrolytic
	a a gradina di Albania.	(RAV-242A-PE) 60MFD,420V

Location No.	Part No.	Description
14	43A19001	Guard, Fan
15	43119368	Hanger
16	43155080	Capacitor, Plastic Film
17	43162027	Cover, Electric Parts
19	43145098	Dryer
20	43141302	Compressor (RAV-242A8-PE)
		YH330X3-MS
20	43140318	Compressor (RAV-242A-PE)
		PH330X3-4MS
21	43148105	Accumulator
22	43146454	Packed Valve, Ø 6.4mm
23	43146417	Packed Valve, Ø 15.9mm
24	43146430	Capillary Tube
25	43157167	Heater, Crankcase
26	43193043	Spring
27	43050277	Thermostat, Birnetal (RAV-242A8-PE)
28	43063195	Holder, Thermostat, Birnetal
		(RAV-242A8-PE)